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CASE REPORT

Vunakizumab for Treatment of Acrodermatitis Continua of Hallopeau: A Case Report and Literature Review

Yi Yao[1–3,*], Yingming Ma[1–3,*], Huajie Zhong[1–3,*], Feiying Guo[1–3], Jiling Zhu[1–3], Yuan Wu[1–3], Shunli Tang[1–3]

[1]Department of Dermatology, Huzhou Central Hospital, Affiliated Central Hospital of Huzhou University, Huzhou, People's Republic of China; [2]Department of Dermatology, Huzhou Central Hospital, Fifth School of Clinical Medicine of Zhejiang Chinese Medical University, Huzhou, People's Republic of China; [3]Department of Dermatology, Affiliated Huzhou Hospital, Zhejiang University School of Medicine, Hangzhou, People's Republic of China

*These authors contributed equally to this work

Correspondence: Shunli Tang, Department of Dermatology, Huzhou Central Hospital, Fifth School of Clinical Medicine of Zhejiang Chinese Medical University, No. 1558, Sanhuan North Road, Huzhou, 313000, People's Republic of China, Tel +86-572-2555321, Email tangshunli@zju.edu.cn

Abstract: Acrodermatitis continua of Hallopeau (ACH) is a rare pustular psoriasis subtype, characterized by recurrent sterile pustules on digits, progressive nail deformation and atrophy. ACH is often refractory to different therapeutic modalities, presenting challenges in clinical practice. Emerging evidence indicates that elevated IL-17 levels modulate keratinocyte proliferation and immune cell infiltration, contributing to ACH pathogenesis and representing a promising therapeutic target. Herein, we presented a case of ACH successfully treated with vunakizumab, China's first self-developed anti-IL-17A monoclonal antibody, and reviewed publications reporting IL-17 targeted therapies for ACH, highlighting the potential benefit of IL-17 targeted therapy in ACH management.

Keywords: acrodermatitis continua of hallopeau, pustular psoriasis, interleukin-17, vunakizumab

Introduction

Acrodermatitis continua of Hallopeau (ACH) is a rare and debilitating pustular psoriasis (PP), characterized by recurrent sterile pustules on digits, progressive destruction of nail apparatus, with or without underlying bone erosions. ACH treatment is challenging, since no standard guidelines have been reported and traditional psoriasis therapies, ie phototherapy, topical corticosteroids and calcineurin inhibitors, systemic methotrexate, acitretin, ciclosporin, exhibit poor efficacy.[1] Biological agents targeting tumor necrosis factor, interleukin (IL)-17, IL-23, and IL-36 have been evaluated for off-label therapeutic use in ACH.[2] Herein, we reported a case of ACH successfully treated with vunakizumab and achieved satisfactory response.

Case Presentation

A 76-year-old woman presented with a 2-year history of painful erythema and pustules on fingertips (Numeric Scale Score (NRS): 10), along with onychodystrophy. She was previously diagnosed with onychomycosis and perionychial eczema and was treated with systemic antifungal and topical corticosteroids. However, her condition did not improve and the lesions continued to progress. She was otherwise healthy and denied history of trauma or psoriasis. Physical examination revealed erythema, desquamation, and blood crusts on distal fingers, hyperkeratosis, detachment and deformation on nails (Figure 1A). A skin biopsy showed neutrophil aggregation in stratum corneum, hyperkeratosis, parakeratosis, diminished granular layer, and acanthosis, consistent with psoriasis (Figure 1B). The patient was thus diagnosed with ACH. Treatment with vunakizumab was initiated, with a regimen of 240 mg subcutaneous injection at

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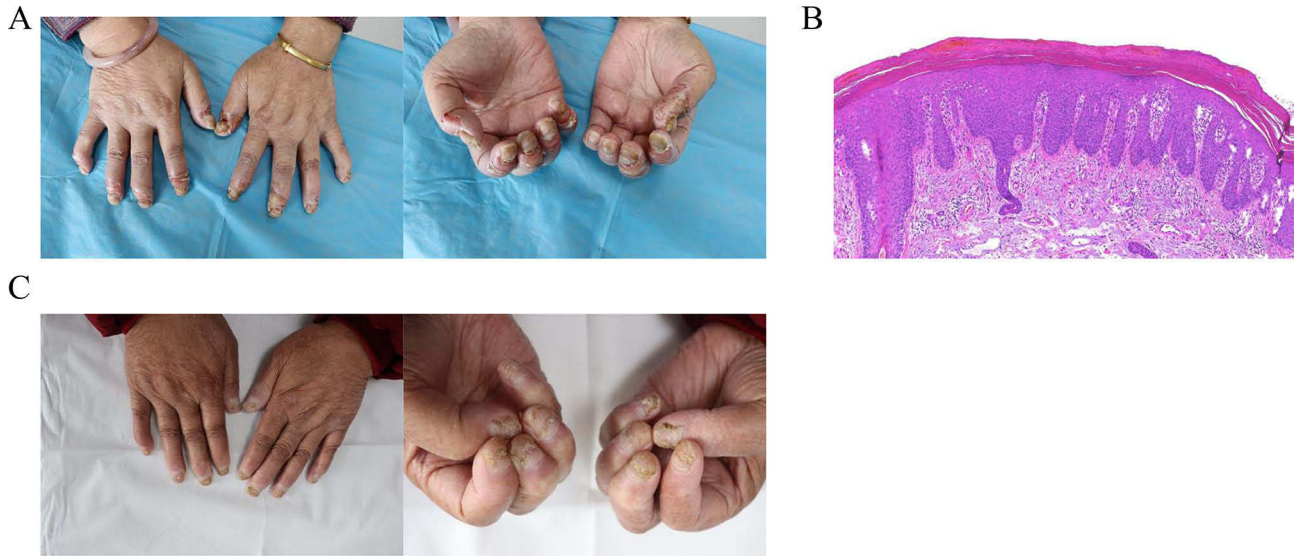

Figure 1 (**A**) Initial clinical presentation showing erythema, desquamation, and blood crusts on distal digits, hyperkeratosis, detachment and deformation on nails. (**B**) Histopathologic examination of digital biopsy showing neutrophil aggregation in stratum corneum, hyperkeratosis, parakeratosis, diminished granular layer, and acanthosis (original magnification, ×200). (**C**) Clinical photographs at week 10 showing faded digital erythema and partial nail regrowth.

weeks 0, 2, and 4, and every 4 weeks thereafter. The pain completely resolved after 1 week (NRS:0), the skin lesions began to improve at 2 weeks and significantly subsided at 10 weeks, along with partial nail regrowth (Figure 1C). No adverse reactions were observed during treatment.

Discussion

ACH, a rare form of PP, typically manifests as chronic, recurrent, inflammatory pustular eruptions of digits and nail apparatus that may lead to onchodystrophy, anonychia, and osteolysis. Although commonly confined to digits, ACH can also extend proximally, even evolving into generalized PP.[1]

Although PP pathogenesis remains incompletely understood, IL-17 appears to play a significant role.[3] Serum and cutaneous levels of IL-17 were higher in patients with PP than in healthy controls. Co-localization analyses suggested infiltrated neutrophils as important source of IL-17, which can induce IL-36 secretion, together inducing keratinocyte hyperproliferation and immune cell infiltration, driving psoriasis progression.[3] Therefore, IL-17 is considered a promising therapeutic target in PP.

Vunakizumab is China's first approved, domestically developed, recombinant anti-IL-17A monoclonal antibody for the treatment of adult patients with moderate-to-severe plaque psoriasis, based on its promising premarketing clinical profile demonstrating high efficacy and favorable tolerability.[4–6] Approximately 70% of patients achieved PASI 90 at week 12 and maintained clinical improvement through week 52, demonstrating that its efficacy was comparable to other IL-17A inhibitors, eg secukinumab and ixekizumab, while offering a longer 4-week dosing interval.[7] Here, we present the first case of ACH successfully treated with vunakizumab. Digital pain resolved within 1 week after treatment initiation, and skin lesions improved by week 2. No adverse events were observed during treatment.

We also reviewed published literature reporting IL-17-targeted therapy for ACH. As of January 2025, 28 articles that included 79 patients with ACH tried IL-17-targeted therapy, including ixekizumab, secukinumab, bimekizumab, and brodalumab (Table 1). Among them, 68 patients achieved disease relief with treatment and the other 11 patients exhibited poor response. Notably, despite an initial poor response to IL-17-targeted therapy, some patients achieved symptomatic relief and improvement after switching to another IL-17 inhibitor or other biologics, indicating the heterogeneity of ACH.[8,9] Although IL-17-targeted therapy was considered safe, several adverse events were reported, with 1 patient discontinuing treatment,[10] highlighting the importance of monitoring therapeutic efficacy and adverse reactions, avoiding futile treatment, and preventing severe adverse events.

Table 1 Interleukin-17 Inhibitors for the Treatment of Acrodermatitis Continua of Hallopeau

Reference	Number	Disease Duration	Psoriatic Symptom	Other Comorbidity	Laboratory Examination[#]	Previous Treatment	Response to Therapy	Adverse Event
Successful experience								
Ixekizumab: IL-17A								
Pilz[11]	1	2 years	No	No	NA	Topical therapy, systemic anti-bacterial and anti-fungal therapy	Acral inflammation resolved, nails regrew, pain relieved after 3 months	NA
Miller[12]	1	>3 ears	No	No	NA	Topical therapy, cyclosporine, apremilast, adalimumab	Skin and nail lesions began to improve within 2 weeks, and almost completely resolved after 10 weeks	No
Battista[13]	1	2 years	Psoriatic arthritis	Latent HBV infection	Enthesitis	Topical and systemic antibiotics	Lesions improved and pain disappeared after 4 weeks, and skin and nail lesions completely resolved after 7 months	No
Gargiulo[14]	1	NA	Psoriasis (unknown type) Psoriatic arthritis	No	NA	NA	Skin lesions completely resolved, and nail lesions improved after 36 weeks	NA
Xia[15]	1	2 years	Inverse psoriasis1	No	NA	Acitretin, etanercept	Skin lesions over the body completely resolved after 8 weeks Digital and nail lesions improved after 24 weeks, completely resolved after 32 weeks, and maintained resolution	No
Guerra[16]	1	NA	No	No	NA	Systemic anti-biotical and anti-fungal therapy	Skin and nail lesions completely resolved after 6 months	NA
Chularojanamontri[17]	4	NA	NA	NA	NA	NA	Symptoms improved in all patients, with 3 experience symptoms clearance	NA
Yuan[18]	18	>1 year	NA	NA	NA	NA	Symptoms improved in all patients, with 8 experience excellent response[a]	4 adverse events[b]
Secukinumab: IL-17A								
Baron[19]	1	Approximately 10 years	No	Erosive oral mucositis	NA	Topical and systemic therapy, including anti-viral, anti-bacterial, anti-fungal, anti-inflammatory, immunomodulatory, and biological agents (apremilast)	Finger changes disappeared, pain relieved, and neurologic sensory recovered in approximately 5 days	NA
Muggli[20]	1	2 years	No	No	NA	Anti-biotic therapy, topical therapy, UV-B phototherapy, acitretin	Digital inflammation completely resolved, fingernails begun regrow, pain relieved after 6 weeks	No
Balestri[21]	1	8 years	No	No	Acroosteolysis and erosion at phalanxs	Topical therapy, acitretin	Skin and nail lesions improved after 4 weeks, lesions further improved and nails regrew after 10 months	No
Khosravi-Hafshejani[22]	1	1 year	Psoriatic arthritis	No	Distal phalanges splaying, dactylitis	Acitretin	Skin and nail changes almost completely resolved, joint tenderness and swelling relieved within 4 months, and full and sustained remission maintained over 2 years	NA

(*Continued*)

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Table 1 (Continued).

Reference	Number	Disease Duration	Psoriatic Symptom	Other Comorbidity	Laboratory Examination[#]	Previous Treatment	Response to Therapy	Adverse Event
Galluzzo[23]	1	1 year	Psoriatic arthritis	Lactose intolerance	Enthesitis with effusion at fingertips	Topical therapy, systemic antibiotics, acitretin	Nail lesions markedly improved from 8 weeks, and exhibited almost complete resolution after 52 weeks Arthritis disappeared after 40 weeks	NA
Smirnova[24]	1	4 years	No	No	NA	Phototherapy, methotrexate, retinoids, apremilast, infliximab	Symptoms improved after 2 weeks, nails regrew after 3 weeks	NA
Kromer[10]	8	NA	NA	NA	NA	NA	No response to treatment in 3 patients, partial improvement in 4 patients[c,d]	2 adverse events, with 1 leading to treatment discontinuation
Chularojanamontri[17]	2	NA	NA	NA	NA	NA	Symptoms improved in both patients, with 1 experience symptoms clearance	NA
Yuan[18]	13	>1 year	NA	NA	NA	NA	Symptoms improved in all patients, with 3 experience excellent response	3 adverse events[b]
Bimekizumab: IL-17A, IL-17F								
Cirone[25]	1	8 years	Plaque and inverse psoriasis	No	NA	Topical therapy, systemic antibiotics, methotrexate, acitretin	Nail lesions improved and thumbnails regrew after 2 months	No
Passeron[8]	1	NA	Palmoplantar pustulosis, psoriatic arthritis	NA	NA	Methotrexate, adalimumab, ixekizumab ustekinumab	Nail symptoms improved, joint pain and skin lesions disappeared after 9 months	Transient oral and genital candidiasis
	1	NA	Palmoplantar pustulosis	NA	NA	Methotrexate, acitretin	Nail symptoms improved, and skin lesions disappeared after 6 months	No
	1	NA	Palmoplantar pustulosis, psoriatic arthritis	NA	NA	Ixekizumab	Skin and nail symptoms improved after 7 months	Transient oral candidiasis
Yoshikawa[26]	1	1 year	Psoriatic arthritis	NA	Enthesitis at ankle and knee joint IL-36RN genetic mutation (c.28T>C)	Topical therapy, etretinate, apremilast, guselkumab	Skin and nail lesions improved after 2 weeks, and almost disappeared after 4 months	NA
García-Rodríguez[27]	1	1 years	Plaque psoriasis	Depression, IgM-κ monoclonal gammopathy of undetermined significance, palatal squamous cell carcinoma	NA	Topical therapy, systemic corticosteroids, methotrexate, brodalumab	Skin lesions almost resolved after 3 weeks, leaving psoriatic onychopathy	No
Pagliara[28]	1	NA	Plaque psoriasis	No	NA	Topical therapy, adalimumab	Lesions almost resolved after 1 month	NA
	1	NA	NA	NA	NA	Adalimumab, secukinumab, brodalumab	Lesions almost resolved after 1 month	NA
	1	NA	NA	NA	NA	Adalimumab	Lesions improved after 1 month	NA

Brodalumab: IL-17RA								
Milani-Nejad[29]	1	20 years	No	No	NA	UV-B phototherapy, methotrexate, cyclosporine, acitretin, apremilast, adalimumab, infliximab, secukinumab, ixekizumab, ustekinumab, guselkumab	Skin lesions improved and almost complete resolved after 6 months	NA
Passante[30]	1	23 years	No	No	NA	Topical therapy, systemic corticosteroids, methotrexate, cyclosporine	Lesions completely resolved after 2 weeks	No
Bardazzi[31]	1	6 months	No	No	No joint involvement	Topical therapy, systemic anti-bacterial and anti-fungal therapy, acitretin, adalimumab, secukinumab	Lesions completely resolved after 4 weeks, and maintained remission over 12 months	NA
Guerra[16]	1	NA	No	NA	NA	Methotrexate, acitretin	Lesions completely resolved after 12 weeks	NA
Chularojanamontri[17]	2	NA	NA	NA	NA	NA	Symptoms improved in both patients, with 1 experience symptoms clearance	NA
Failure experience								
Ixekizumab: IL-17A								
Schmid[32]	1	2 years	Psoriatic arthritis	No	Joint erosion at toes	Topical therapy, methotrexate	Joint pain resolved within 1 week, but skin and phalangeal lesions did not improve after 8 months (withdrawal)	NA
	1	6 years	Plaque psoriasis Psoriatic arthritis	No	NA	Topical therapy, systemic corticosteroids, methotrexate, cyclosporine, acitretin, apremilast, etanercept, infliximab, secukinumab, ustekinumab	Skin and nail lesions did not improve after 4 months	NA
Kromer[10]	2	NA	NA	NA	NA	NA	No response to treatment in both patients[c]	No
Zhang[9]	1	10 years	Annular pustular psoriasis	No	IL-36RN genetic mutation (c.115+6T>C)	Cyclosporine, acitretin	Symptoms improved firstly, but acral swelling and lesions reappeared after 12 weeks	NA
Chen[33]	1	9 months	No	No	No associated or suspected pathogenic genetic mutation	Topical therapy, systemic corticosteroids	Symptoms did not improve after 2 months (withdrawal)	NA
Wang[34]	1	1 year	No	No	NA	Systemic corticosteroids, acitretin	Symptoms worsened after 14 weeks (withdrawal)	No

(*Continued*)

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Table 1 (Continued).

Reference	Number	Disease Duration	Psoriatic Symptom	Other Comorbidity	Laboratory Examination[#]	Previous Treatment	Response to Therapy	Adverse Event
Secukinumab: IL-17A								
Schmid[32]	1	6 years	Plaque psoriasis Psoriatic arthritis	No	NA	Topical therapy, systemic corticosteroids, methotrexate, cyclosporine, acitretin, apremilast, etanercept, infliximab, ustekinumab	Joint symptoms alleviated, but skin and nail lesions did not improve after 6 months (withdrawal)	NA
Bardazzi[31]	1	6 months	No	No	No joint involvement	Topical therapy, systemic anti-bacterial and anti-fungal therapy, acitretin, adalimumab	Symptoms partial improved after 4 months, but severe disease relapse occurred after 1 years	NA
Zhang[9]	1	12 years	Generalized pustular psoriasis	No	Bone erosions at fingertips IL-36RN genetic mutation (c.115+6T>C; c.227C>T)	Systemic corticosteroids, thiamphenicol, acitretin	Skin lesion over the body disappeared, but acral swelling and lesions did not improve after 10 months	NA
	1	>10 years	No	No	No osteolytic changes or joint deformities in radiological examination IL-36RN genetic mutation (c.115+6T>C)	Traditional Chinese medicine, acitretin	Skin and nail lesions did not improve after 6 months	NA
Wen[35]	1	16 years	Generalized pustular psoriasis	No	NA	Cyclosporine, acitretin, adalimumab	Skin lesions almost resolved, but nail lesions persisted after 3 months	NA

Notes: [#]Laboratory examination mainly includes osteoarticular changes, and genetic mutations. [a]Though symptoms were improved in all 18 patients, with 1 patient unsatisfactory to treatment response (self-evaluation: ineffectiveness) and thus stopping treatment. [b]Though adverse events were reported, the specific manifestations were unknown and no patient discontinued treatment due to adverse events. [c]No response to treatment, including exacerbation of disease. [d]Data of 1 patient was missed.

In summary, IL-17-targeted therapy, vunakizumab in our case, is a promising alternative treatment for ACH, with advantages of high efficacy, favorable tolerability, and long dosing intervals. However, further studies with large sample sizes are necessary to confirm the efficacy and safety of IL-17-targeted therapy for ACH and to elucidate the potential factors affecting treatment outcomes.

Ethical Statement

The patient in this manuscript has given written informed consent to the publication of case details and any accompanying images. Institutional approval was not required to publish the case details.

Disclosure

The authors declare that they have no conflicts of interest in this work.

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